

**CLAIMS**

1. A biologically pure bacterial culture of *M. elsdenii* having substantially the same 16S ribosomal RNA sequence as that of the *M. elsdenii* strain deposited at NCIMB, Aberdeen, Scotland, UK under number NCIMB 5 41125.
2. A biologically pure bacterial culture of the *M. elsdenii* strain deposited at NCIMB, Aberdeen, Scotland, UK under number NCIMB 41125. 10
3. A biologically pure bacterial culture of *M. elsdenii* according to claim 1 or claim 2 which is further characterised by its ability to utilise lactate very efficiently even in the presence of sugars; its resistance to ionophores; its relatively high growth rate; its capability to produce predominantly acetate; and its capability to proliferate at relatively low pH values below 15 5.0 and as low as 4.5.
4. A composition for facilitating the adaptation of ruminants from a roughage-based diet to a high-energy concentrate-based diet, the 20 composition consisting essentially of a bacterial culture according to any one of claims 1 to 3.

5. A method of facilitating the adaptation of ruminants from a roughage-based diet to a high-energy concentrate-based diet including the step of administering to the rumen of said ruminants an effective amount of a bacterial culture according to any one of claims 1 to 3.

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6. A feed-additive for ruminants comprising a carrier and an effective amount of a bacterial culture according to any one of claims 1 to 3.

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7. A feed-additive according to claim 6 wherein the culture is disposed in an anaerobic container.

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8. A method for the treatment of ruminal lactic acidosis and prevention of any one or more of the following, namely ruminal lactic acidosis, rumenitis, ruminal lactic acidosis induced laminitis, ruminal lactic acidosis induced bloat and liver abscesses, including the step of anaerobically administering to the rumen of a ruminant an effective amount of a bacterial culture according to any one of claims 1 to 3.

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9. A veterinary agent for the treatment of ruminal lactic acidosis and prevention of any one or more of the following, namely ruminal lactic acidosis, rumenitis, ruminal lactic acidosis induced laminitis, ruminal lactic acidosis induced bloat and liver abscesses, comprising an

effective amount of a bacterial culture according to any one of claims 1 to 3.

10. A preparation for the treatment of ruminal lactic acidosis and prevention  
5 of any one or more of the following, namely ruminal lactic acidosis, rumenitis, ruminal lactic acidosis induced laminitis, ruminal lactic acidosis induced bloat and liver abscesses in ruminants comprising an inoculum of a bacterial culture according to any one of claims 1 to 3; and a separate sterile anaerobic growth medium, the components of the preparation being disposed in separate chambers of an anaerobic 10 container which are anaerobically connectable to each other, thus to inoculate the growth medium with the culture anaerobically.
11. A method of achieving any one or more of the following improvements in  
15 ruminants namely increased milk production; improved feedlot performance; improved growth rate; decrease in finishing time; lower digestive morbidity and mortality; lower incidence of lactic acidosis and related diseases; improved feed conversion efficiency; decrease in roughage content in feeds; and capability to feed on relatively higher 20 concentrate diets, including the step of administering to the rumen of a ruminant an effective amount of a bacterial culture according to any one of claims 1 to 3.

12. A method according to claim 11 wherein the culture is administered anaerobically.
13. A method of isolating a biologically pure culture of a superior ruminal microorganism in a relatively shorter time period than conventional methods, the method including the steps of obtaining a sample of ruminal fluids; and cultivating the sample on a pre-selected growth medium, the method being characterised in that a plurality of parameters selected from the group comprising growth medium constituents, dilution rate, pH, temperature, anti-microbial agents, gaseous environment, redox potential, lack of nutrients and challenging organisms, are pre-selected to favour the superior rumen microorganism to the detriment of inferior rumen microorganisms.
14. A biologically pure bacterial culture of *M. elsdonii* substantially as herein described and exemplified.
15. A composition for facilitating the adaptation of ruminants from a roughage-based diet to a high-energy concentrate-based diet substantially as herein described and exemplified.

16. A method of facilitating the adaptation of ruminants from a roughage-based diet to a high-energy concentrate-based diet substantially as herein described and exemplified.
- 5 17.. A feed-additive for ruminants substantially as herein described and exemplified.
- 10 18. A method for the treatment of ruminal lactic acidosis and prevention of any one or more of the following, namely ruminal lactic acidosis, rumenitis, ruminal lactic acidosis induced laminitis, ruminal lactic acidosis induced bloat and liver abscesses, substantially as herein described and exemplified.
- 15 19. A veterinary agent for the treatment of ruminal lactic acidosis and prevention of any one or more of the following, namely ruminal lactic acidosis, rumenitis, ruminal lactic acidosis induced laminitis, ruminal lactic acidosis induced bloat and liver abscesses, substantially as herein described and exemplified.
- 20 20. A preparation for the treatment of ruminal lactic acidosis and prevention of any one or more of the following, namely ruminal lactic acidosis, rumenitis, ruminal lactic acidosis induced laminitis, ruminal lactic

acidosis induced bloat and liver abscesses in ruminants substantially as herein described and exemplified.

21. A method of achieving any one or more of the following improvements in

5 ruminants namely increased milk production; improved feedlot performance; improved growth rate; decrease in finishing time; lower digestive morbidity and mortality; lower incidence of lactic acidosis and related diseases; improved feed conversion efficiency; decrease in roughage content in feeds; and capability to feed on relatively higher 10 concentrate diets, substantially as herein described and exemplified.

22. A method of isolating a biologically pure culture of a superior ruminal

microorganism in a relatively shorter time period than conventional methods, substantially as herein described and exemplified.

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### 30 Phylogenetics

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